



DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 572

[Docket No. NHTSA-2020-0088]

RIN 2127-AM38

Anthropomorphic Test Devices;

Q3s 3-Year-Old Child Side Impact Test Dummy;

Incorporation by Reference

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Final rule, response to petition for reconsideration, technical corrections.

SUMMARY: This document responds to a petition for reconsideration from Humanetics

Innovative Solutions Inc. (HIS) concerning a November 3, 2020 final rule that amended

NHTSA's regulation on anthropomorphic test devices to add design and performance specifications for a test dummy representing a 3-year-old child, called the "Q3s" test dummy.

The Q3s is an instrumented dummy that can assess the performance of child restraint systems in protecting small children in side impacts. The petitioner asks for corrections to hole dimensions and tolerances in a few of the drawings of parts in the dummy torso, because they are in error.

This final rule grants the petition and revises the drawing package, parts list, and procedures manual for assembling and inspecting the Q3s.

DATES: The effective date of this final rule is: **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The incorporation by reference of the publications listed in the rule has been approved by the Director of the Federal Register as of

[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

Petitions for reconsideration: Petitions for reconsideration of this final rule must be received not later than **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].**

Privacy Act: The petition will be placed in the docket. Anyone is able to search the electronic form of all documents received into any of the agency's dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the *Federal Register* published on April 11, 2000 (Volume 65, Number 70; Pages 19477-78) or you may visit <http://dms.dot.gov>.

Confidential Business Information: If you wish to submit any information under a claim of confidentiality, you should submit three copies of your complete submission, including the information you claim to be confidential business information, to the Chief Counsel, NHTSA, at the address given under FOR FURTHER INFORMATION CONTACT. In addition, you should submit a copy, from which you have deleted the claimed confidential business information, to Docket Management at the address given above. To facilitate social distancing due to COVID-19, NHTSA is treating electronic submission as an acceptable method for submitting confidential business information (CBI) to the agency under 49 CFR part 512. <https://www.nhtsa.gov/coronavirus>

ADDRESSES: Petitions for reconsideration of this final rule must refer to the docket and regulatory information number (RIN) set forth above and be submitted to the Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Avenue, S.E., Washington, D.C. 20590. Note that all petitions received will be posted without change to <http://www.regulations.gov>, including any personal information provided.

FOR FURTHER INFORMATION CONTACT:

For technical issues: Peter Martin, NHTSA Office of Crashworthiness Standards (email Peter.Martin@dot.gov). *For legal issues:* Deirdre Fujita, NHTSA Office of Chief Counsel (telephone 202-366-2992) (email Dee.Fujita@dot.gov). Mailing address: National Highway Traffic Safety Administration, U.S. Department of Transportation, 1200 New Jersey Avenue, S.E., West Building, Washington, D.C. 20590.

SUPPLEMENTARY INFORMATION:

I. Background

This document responds to a petition for reconsideration of a November 3, 2020 final rule that amended NHTSA's regulation on anthropomorphic test devices (ATD) (49 CFR part 572) to add design and performance specifications for a test dummy representing a 3-year-old child, called the "Q3s" test dummy.¹ The specifications and qualification tests for the Q3s are set forth in a new subpart W of part 572. The Q3s is an instrumented dummy that can assess the performance of child restraint systems in protecting small children in side impacts. The Q3s weighs 14.5 kilograms (kg) (32.0 pounds) and has a seated height of 556 millimeters (mm), and is representative of a 50th percentile 3-year-old child. The Q3s dummy's main parts (head, thorax, neck, shoulder, spine, abdomen, pelvis, and relevant instrumentation) and biofidelity are described in detail in the November 2020 final rule.

II. Petition for Reconsideration

Humanetics Innovative Solutions Inc. (HIS), submitted a timely petition for reconsideration to NHTSA on December 18, 2020. The petition explained the need for corrections to several of the Q3s drawings. First, HIS explained that on drawing 020-6100, LUMBAR SPINE CABLE ASSEMBLY, the dimension across the cable swage corners is 7.10 millimeters (mm) maximum. HIS stated that it had made the determination in 2016 that this dimension would result in the cable interfering with the thru hole on parts 020-6002 and 020-6003, which have minimum thru hole dimensions of 6.97 mm. Although HIS corrected internal

¹ 85 FR 69898, Docket No. NHTSA-2020-0088.

manufacturing drawings to reflect this change, these changes were “inadvertently missed in the updated Q3s drawings submitted to the NHTSA in the 2016 drawing package.” As a result, HIS’s petition recommends the following:

- 1) Drawing 020-6002, BRACKET, TOP LUMBAR SPINE, the THRU Hole $7.00 +0.15/-0.03$, should be $7.30 +0.1/-0.5$ [sic] (dimensions in mm);
- 2) Drawing 020-6003, PLATE, BOTTOM LUMBAR SPINE, the THRU Hole $7.00 +0.15/-0.03$, should be $7.30 +0.1/-0.5$ [sic] (dimensions in mm).²

In addition to the above, HIS states there is a typographical error in a tolerance value on drawing 020-6003. There is currently a specification of the outside diameter of a hole chamfer stated as 9.5 ± 0.02 mm. HIS states that the 0.02 mm tolerance is an error and the correct tolerance resides in the “tolerance box,” which would make the tolerance on this dimension 0.2 mm.

III. Agency Response

In response to the HIS petition, NHTSA investigated the dimensions in questions on the parts depicted in drawings 020-6002 and 020-6003. Upon initial analysis of the petition, it was apparent to the agency that HIS’s recommended dimension and tolerance of $7.30 +0.1/-0.5$ mm was meant to be $7.30 +0.1/-0.05$ mm, i.e., the minus tolerance was supposed to be -0.05, not -0.5, as the suggestion by HIS would have increased the lower tolerance by nearly 17 times. The agency contacted HIS and the petitioner verified the “-0.5” was an error, and that it intended the value to be “-0.05” instead.³ Thus, the remainder of our analysis is based on a recommended dimension and tolerance of $7.30 +0.1/-0.05$ mm.

The agency measured the parts depicted on drawings 020-6002 and 020-6003 on 4 sets of parts and found that the holes’ outer diameters matched the $7.30 +0.1/-0.05$ mm dimensions.

² As explained below, HIS meant the negative tolerance to be -0.05 and not -0.5.

³ An email from HIS acknowledging the “0.5” dimension is an error is in the docket for this final rule.

Thus, the HIS recommended dimension and tolerance is acceptable. The agency notes that the specified dimension must also be modified on drawings 020-6001-U and 020-6001-2.

With respect to drawing 020-6003, NHTSA agrees that the tolerance should be ± 0.2 mm, as indicated in the tolerance block for the drawing.⁴ Accordingly, the 9.5 mm dimension on the drawing is now to have a range from 9.3 to 9.7 mm, inclusive.⁵

While examining the drawings associated with the parts in question, NHTSA found minor errors in drawing 020-6000-S and 020-6001-S that we are correcting in this document. First, on drawing 020-6000-S, ITEM 2 on the drawing (HEX JAM NUT, M6 X 1 ZINK, Part No. 5000144V) should be specified as a quantity of 2, rather than 1. Second, on drawing 020-6001-S, NOTES 2 and 3, need revision to indicate a jam nut is being used instead of a lock nut. These corrections are explained in more detail below.

Currently, the NOTES 2 and 3 are set forth as follows:

2. CABLE (020-6100), WASHER (5000094) & LOCK NUT (5000093) MUST BE INSTALLED FOR TESTING.

3. PRE-LOAD SPINE MOLDING BY 1/2 TURN OF NUT.

These notes reference outdated assembly procedures that were appropriate for a lock nut. Prior to finalizing the Q3s dummy, the lock nut assembly was replaced by a jam nut assembly. This necessitated a change to the NOTES, but that was inadvertently overlooked. The corrected notes are as follows:

2. CABLE (020-6100), WASHER (5000094), & JAM NUTS (5000144V) MUST BE INSTALLED FOR TESTING.

⁴ Mechanical drawings typically have a title block in the lower right corner. This is a table providing a variety of information about the drawing, e.g., drawing number, scale of the drawing, revision level, etc. The title block of the Q3s drawings contain a cell (tolerance block) that provides tolerances for the drawing that are to be applied unless otherwise specified. In the case of drawing 020-6003, the tolerance block states that dimensions specified to one-tenth of a mm are to have a ± 0.2 mm tolerance.

⁵ All of the parts of all dummies measured by NHTSA were within tolerance.

3. APPLY TORQUE OF 2 IN.-LB. TO FIRST JAM NUT, THEN LOCK IN POSITION WITH SECOND JAM NUT.

Finally, NHTSA became aware of an error in the "Procedures for Assembly, Disassembly, and Inspection" (PADI) related to the pubic load cell of the dummy. This error is unrelated to the changes to lumbar spine and the revisions to the engineering drawings.

The pubic load cell is contained within a subassembly that includes a rubber buffer block. It is a single-axis load cell which measures the lateral force (F_y) within the dummy's pelvis at its pubic symphysis. Depending on whether the dummy is used for a right side or a left side impact, the subassembly is flipped so that the buffer block is always placed between the load cell and the source of the impact force. Either way, the force registered by the load cell should always be negative when the pelvis is compressed. This convention is consistent with SAE J1733, Sign Convention for Vehicle Crash Testing, which is subtended by the regulatory text in § 572.219 Test Conditions and Instrumentation.

The PADI includes dummy manipulations to check all load cell polarities to assure that they were wired correctly. The manipulations for the pubic load cell were mistakenly included in Table C-6, Polarity Check Data Sheet for Displacement Transducers. Also, the load cell was described as an "external" load cell, but it is actually an "internal" load cell in accordance with SAE J1733. The difference between an external vs. an internal load cell is explained in SAE J1733 and does affect the interpretation of a load.

Moreover, the PADI included separate manipulations for the right side installation and the left side installation. The right side check produced the correct polarity. However, the left side manipulation indicated a (+) polarity for pubic compression, which is incorrect according to the SAE J1733.

In the revised PADI, the manipulations are moved to Table C-5, Polarity Check Data Sheet for Load Cells. The load cell is correctly categorized as an "internal" load cell, and a single manipulation covers the polarity check for either a right side or a left side installation. We note that a single manipulation is all that is needed to assure that the load cell registers a negative polarity when the pubic symphysis is compressed. SAE J1733 also describes a single manipulation to check the pubic load cell. The corrected manipulation is:

Pubic Load (internal load)

Channel: Fy

Dummy manipulation: Left femur rightward, right femur leftward

Polarity: (-)

IV. Summary of Corrections

This final rule changes the regulatory text of part 572, subpart W to incorporate by reference a new drawing package, parts list, and PADI for the Q3s dummy, all dated January 2021. The new drawing package, parts list, and PADI will be placed in the same docket as the supporting material for the November 2020 file rule (Docket NHTSA-2020-0088). Although only a few drawings have been corrected in the previous drawing package, we are issuing a new drawing package because we believe it is easier for users of the Q3s to change out the whole drawing package for the ATD than having to search for and replace various individual drawings.

The following changes will be made to the drawings for the dummy:

1. The date on the coversheet of the Drawing Package will be changed to January 2021 and the revision level of the main assembly will be updated from Rev. J to Rev. K.
2. Drawing 020-6000-S will be updated to reflect a quantity of 2 for ITEM 2, instead of a quantity of 1.
3. Drawings 020-6001-S:

- a. Will be updated with the dimension of 7.30 mm replacing 7.00 mm for the RUBBER MOLDING.
 - b. Will be updated such that NOTES 2 and 3 will reflect the use of a jam nut instead of a lock nut.
4. Drawings 020-6001-U will be updated with the dimension of 7.30 mm replacing 7.00 mm for the RUBBER MOLDING.
5. Drawing 020-6002 will be updated with the dimension 7.30 +0.1/-0.05 mm replacing the dimension 7.00 +0.1/-0.03 mm.
6. Drawing 020-6003:
- a. Will be undated with the dimension 7.30 +0.1/-0.05 mm replacing the dimension 7.00 +0.1/-0.03 mm.
 - b. Will remove the ± 0.02 mm tolerance from the dimension of 9.5 mm.

In addition, the date on the coversheet of the Parts List will be changed to January 2021 and the revision levels of the affected parts will be updated.

The following changes will be made to the PADI for the dummy:

- 1. Table C-5: Will be updated to include a manipulation for the pubic load cell so that the polarity of the Fy channel will be (-) when placed under compression.
- 2. Table C-6: Pubic load cell manipulations will be removed from this table.

In addition, the date on the coversheet of the PADI will be changed to January 2021.

V. Rulemaking Analyses and Notices

Executive Order 12866, and DOT Regulatory Policies

NHTSA has reviewed this final rule under the Department of Transportation's administrative rulemaking orders and procedures. This rulemaking is not significant under E.O. 12866 and was not reviewed by the Office of Management and Budget (OMB). The underlying final rule incorporating the Q3s test dummy into 49 CFR part 572 was not considered significant. Specifications in part 572 do not impose any requirements on anyone. Businesses are affected

only if they choose to manufacture or test with an ATD in part 572. Further, this final rule simply corrects errors in the drawing package of the dummy to reflect how it has been manufactured for the past several years. As such, this final rule has minimal impact on costs or benefits. Accordingly, no further regulatory evaluation is necessary.

Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act (5 U.S.C. 601 et seq., as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small governmental jurisdictions), unless the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The Small Business Administration's regulations at 13 CFR Part 121 define a small business, in part, as a business entity "which operates primarily within the United States." (13 CFR 121.105(a)).

NHTSA has considered the effects of this rulemaking under the Regulatory Flexibility Act. I hereby certify that this rulemaking action will not have a significant economic impact on a substantial number of small entities. This action will not have a significant economic impact on a substantial number of small entities because this final rule simply corrects errors in the drawing package of the Q3s dummy to reflect how it has been manufactured for the past several years. Thus, this final rule has minimal impact on costs or benefits. In addition, specifications in part 572 do not impose any requirements on anyone. Businesses are affected only if they choose to manufacture or test with the dummy. NHTSA will use the ATD in agency testing but does not require anyone to manufacture the dummy or to test motor vehicles or motor vehicle equipment with it.

National Environmental Policy Act

NHTSA has analyzed this final rule for the purposes of the National Environmental Policy Act and determined that it will not have any significant impact on the quality of the human environment.

Executive Order 13045 and 13132 (Federalism)

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that: (1) is determined to be “economically significant” as defined under E.O. 12866, and (2) concerns an environmental, health, or safety risk that NHTSA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, NHTSA must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the agency. This final rule is not subject to the Executive Order because it is not economically significant as defined in E.O. 12866.

NHTSA has examined today’s final rule pursuant to Executive Order 13132 (64 FR 43255, August 10, 1999) and concluded that no additional consultation with States, local governments or their representatives is mandated beyond the rulemaking process. The agency has concluded that this final rule will not have federalism implications because the rule would not have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” This final rule will not impose any requirements on anyone. Businesses will be affected only if they choose to manufacture or test with the dummy.

Further, no consultation is needed to discuss the preemptive effect of today’s final rule. NHTSA’s safety standards can have preemptive effect in two ways, but this rule amends 49 CFR

part 572 and is not a safety standard.⁶ This part 572 final rule will not impose any requirements on anyone.

Civil Justice Reform

With respect to the review of the promulgation of a new regulation, section 3(b) of Executive Order 12988, “Civil Justice Reform” (61 FR 4729, February 7, 1996) requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the preemptive effect; (2) clearly specifies the effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct, while promoting simplification and burden reduction; (4) clearly specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. This document is consistent with that requirement.

Pursuant to this Order, NHTSA notes as follows.

The issue of preemption is discussed above in connection with E.O. 13132. NHTSA notes further that there is no requirement that individuals submit a petition for reconsideration or pursue other administrative proceeding before they may file suit in court.

Paperwork Reduction Act

Under the Paperwork Reduction Act of 1995, a person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid control number from the Office of Management and Budget (OMB). This final rule will not have any

⁶ With respect to the safety standards, the National Traffic and Motor Vehicle Safety Act contains an express preemptive provision: “When a motor vehicle safety standard is in effect under this chapter, a State or a political subdivision of a State may prescribe or continue in effect a standard applicable to the same aspect of performance of a motor vehicle or motor vehicle equipment only if the standard is identical to the standard prescribed under this chapter.” 49 U.S.C. 30103(b)(1). Second, the Supreme Court has recognized the possibility of implied preemption: State requirements imposed on motor vehicle manufacturers, including sanctions imposed by State tort law, can stand as an obstacle to the accomplishment and execution of a NHTSA safety standard. When such a conflict exists, the Supremacy Clause of the Constitution makes the State requirements unenforceable. See Geier v. American Honda Motor Co., 529 U.S. 861 (2000).

requirements that are considered to be information collection requirements as defined by the OMB in 5 CFR Part 1320.

National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104-113, section 12(d) (15 U.S.C. 272) directs NHTSA to use voluntary consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs NHTSA to provide Congress, through OMB, explanations when the agency decides not to use available and applicable voluntary consensus standards. There are no voluntary consensus standards relevant to this final rule.

Unfunded Mandates Reform Act

Section 202 of the Unfunded Mandates Reform Act of 1995 (UMRA), Pub. L. 104-4, requires Federal agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of more than \$100 million annually (adjusted for inflation with base year of 1995). Before promulgating a NHTSA rule for which a written statement is needed, section 205 of the UMRA generally requires the agency to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule.

This final rule will not impose any unfunded mandates under the UMRA. This rule does not meet the definition of a Federal mandate because it does not impose requirements on anyone.

Incorporation by Reference

Under regulations issued by the Office of the Federal Register (1 CFR 51.5(a)), an agency, as part of a final rule that includes material incorporated by reference, must summarize in the preamble of the final rule the material it incorporates by reference and discuss the ways the material is reasonably available to interested parties or how the agency worked to make materials available to interested parties.

In this final rule, NHTSA incorporates by reference a new technical data package for the Q3s consisting of a set of engineering drawings for the test dummy, and a parts list. Q3s dummies manufactured to meet the qualification requirements and the technical data package will be uniform in their design, construction, and response to impact forces.

NHTSA has placed a copy of the updated technical data package in the docket listed at the beginning of this document. Interested persons can download a copy of the materials or view the materials online by accessing www.Regulations.gov. Telephone: 1-877-378-5457. The material is also available for inspection at the Department of Transportation, Docket Operations, Room W12-140, 1200 New Jersey Avenue, S.E., Washington, D.C. Telephone: 202-366-9826. The material is also available for inspection by contacting NHTSA's Chief Counsel's Office at the phone number and address set forth in the "For Further Information" section of this document. The material is available for review at NHTSA and is available for purchase from SAE International.

Plain Language

Executive Order 12866 requires each agency to write all rules in plain language. Application of the principles of plain language includes consideration of the following questions:

Has the agency organized the material to suit the public's needs?

Are the requirements in the rule clearly stated?

Does the rule contain technical language or jargon that is not clear?

Would a different format (grouping and order of sections, use of headings, paragraphing) make the rule easier to understand?

Would more (but shorter) sections be better?

Could the agency improve clarity by adding tables, lists, or diagrams?

What else could the agency do to make this rulemaking easier to understand?

If you have any responses to these questions, please send them to NHTSA.

Regulation Identifier Number

The Department of Transportation assigns a regulation identifier number (RIN) to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. You may use the RIN contained in the heading at the beginning of this document to find this action in the Unified Agenda.

List of Subjects in 49 CFR Part 572

Motor vehicle safety, Incorporation by reference.

In consideration of the foregoing, NHTSA amends 49 CFR part 572 as follows:

PART 572-ANTHROPOMORPHIC TEST DEVICES

1. The authority citation for Part 572 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.95.

Subpart W – Q3s Three-Year-Old Child Test Dummy

2. Section 572.210 is amended by revising paragraphs (a)(1), (2) and (3), to read as follows:

* * * * *

§ 572.210 Incorporation by reference

(a) * * *

(1) A parts/drawing list entitled, “Parts/Drawings List, Part 572 Subpart W, Q3s Three-Year-Old Child Side Impact Dummy” dated (and revised) January 2021 (Parts/Drawings List); IBR approved for §572.211.

(2) A drawings and inspection package entitled, “Drawings and Specifications for Q3s Three-Year-Old Child Side Impact Dummy, Part 572 Subpart W” dated (and revised) January 2021 (Drawings and Specifications); IBR approved for §§572.211, 572.212, 572.213, 572.214, 572.215, 572.216, 572.217, 572.218, and 572.219.

(3) A procedures manual entitled “Procedures for Assembly, Disassembly, and Inspection (PADI) of the Q3s Child Side Impact Crash Test Dummy” dated January 2021 (PADI); IBR approved for §§572.211, 572.215(b), 572.216(b), and 572.219(a).

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Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.95, 501.4, and 501.5.

Steven Cliff
Deputy Administrator

Billing Code: 4910-59-P

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